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Special Report

THE IMPORTANCE OF PROCUREMENT IN A GLOBAL ENVIRONMENT

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The Importance of Procurement in a Global Environment

Until recently, procurement was a necessary, but seldom celebrated, component of multinational corporations. But times have changed: These days, procurement organizations within companies are playing pivotal roles in the success of global firms in ways that old-fashioned purchasing managers could never have imagined. In this special report, Wharton faculty and procurement experts at The Boston Consulting Group discuss why the procurement function has risen to such prominence in a highly competitive global environment, and how, as supplies of critical commodities tighten and prices rise, companies can strategize to mitigate these and other risks.

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Procurement — The Strategic Perspective

Procurement has taken on greater strategic importance in multinational companies in recent years — and it will assume even greater significance in the years to come, according to Hal Sirkin, senior partner and managing director at The Boston Consulting Group and global leader of BCG's operations practice. In an interview with Knowledge@Wharton, Sirkin discusses procurement in the context of global business, and the ways in which companies from rapidly developing economies are challenging traditional multinationals.

Knowledge@Wharton: Companies have been sourcing from China and other low-cost locations for years now. What level of expertise and cost savings are you seeing?

Sirkin: We've seen cost savings in the range of 20% to 40%, depending on what the product is. On the other hand, we've also seen examples where there were no cost savings when companies tried it. There are a lot of advantages to going to low-cost countries to source, but it has to be done right. I think the biggest mistake that companies make is that they try to source things and forget it — and you can't forget it.

There are really three things that you have to get right: the product, the process, and the location. First, you have to think about what the product is. Are you sourcing the right part or the right product? That really means that the company you're buying from needs to have the technical capability to produce it well and the practical capability to execute it well. But you also need to see if it even makes sense to source it from China or other low-cost locations. If a part requires 50% labor, it makes a lot of sense to go to countries that have low-cost for labor. But if it only has 10% labor content, then it makes more sense to buy closer to home and save on the transportation costs.

The second thing is having the right process with regard to the supply chain and quality. From a supply chain perspective, you have to make sure that the costs don't eat up the savings. So, items that are difficult to transfer — such as large, bulky or perishable products — become an issue. Or, if you have a fashion product or something with a lot of variable demand, sourcing it far away means that you'll have to hold a lot more inventory. That means higher costs and a greater risk of obsolescence. We've seen people trying to offshore and outsource parts and products with 300% variation in demand, and when that happens, the value goes down.

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In addition to the right supply chain, you have to have a quality process in place. Now, we've seen a lot of examples recently where companies have had problems with the quality of the products that are coming in. Some products were unsafe and others were unusable. Whenever you outsource, you have to invest your time and people to make sure that the quality process is in place, because your brand is on that product, whether you make it in Chicago or

China. And because your brand is on that product, you have to make sure that you defend it and whatever you produce. Saying that it was "Made in China" or "Made in India" does not defend you against a quality problem. In fact, it may make it worse in the public's mind.

The third thing is to outsource to the right location. The absolute lowest direct cost is not always the best thing to do. Back to supply chain issues, if you're thinking about bringing something to China, you'll also probably — if you're in the U.S. — want to consider Mexico. Or if you're in Western Europe, you'll want to consider Eastern Europe because you may have a much better balance there [even though the direct cost may be higher] of avoiding supply chain problems, such as large variability and inventories, and the hidden costs of other things.

In the U.S., with increasing port constraints, we may be seeing delays over time. And Mexico, which of course does not require importing through ports, may be a good alternative. So, get it right [and] you can see a lot of savings. Get it wrong and your costs actually go up.

Knowledge@Wharton: So then, would you say that the level of expertise that you are seeing amongst the companies that are sourcing globally is pretty good — or do they have a way to go?

Sirkin: Well, some companies do it well. They've got a lot of experience and their expertise is extremely good. They avoid a lot of the problems and they are making the right decisions. Other companies, normally the ones that are starting, are going in sometimes way too fast without the right level of expertise and they are making a lot of mistakes. It's fine to make mistakes as you learn, but it's better to make them on small things than big things.

Some companies spend billions of dollars building plants and then recognize that they've made mistakes. The biggest mistake that they often make is to duplicate a plant that they have either in Europe or in the U.S. And because in low-cost countries the value is in the low wages, you don't necessarily want to put in a lot of automation. If you've put in a lot of automation, of course, you haven't taken advantage of the fact that the wages are lower.

Knowledge@Wharton: Can you think of any specific examples of things companies should be doing differently, if they haven't quite yet done everything perfectly, so to speak?

Sirkin: Three things come to mind. One is to rethink what you do. Again, if you move to an environment with a much lower labor cost, you need to think about things differently. Fundamentality, there is what we call the capital/labor trade-off. If you're in an environment of $25- or $50-an-hour wages fully loaded, you think about the trade-off between capital and labor very differently than if you're in an environment like China where wages are $1 to $2 an hour.

At that point in time, you may say, "I want to produce things. I don't want to spend as much money on capital assets because wages are so low." I want to think about how to set up my factory, but I also want to think about the design of my product. If I want to avoid high-cost labor, I'll design a simpler product with fewer screws and other small parts, something that can be made with an automated production process. But if wages are only about 4% of what I would pay in the West, the capital/labor trade-off is different. I may design a product with a much more manual production process with things like screws rather than more fancy welding because it's fundamentality cheaper.

Many automotive factories fall into this trap. U.S. and European companies copied their plants and then sent them to China. In doing so, they actually ended up with a higher cost position, because they put in lots of automation and they were sub-scale. To succeed at low-cost sourcing, companies first need to rethink what they do.

Second, they need to rethink the whole opportunity and that doesn't mean just sourcing. If you're going to produce in China and India — where there is a combined population of about 2.5 billion people — you may want to think about using your production facilities as a platform to start selling in those markets or expanding sales in those markets. Or [you may want to] use your plants for more than just that single part or that single product or that single division of your company. Use them as a lever to do even more sourcing there for the right products.

Third — and this is the most controversial [and] people worry about it tremendously — you have to find ways to protect your intellectual property. You need to be explicit about the trade-off between the cost savings and the risk of losing your intellectual property and make some real decisions. We've seen companies lose intellectual products because they sent them to countries with lower protection.

But we've also seen companies make some very smart decisions. I'm thinking about a French company that makes a tri-metal alloy for which the end part of the production process is the important part of the intellectual property. They made a decision not to bring that technology to a low-cost country, but to keep it in France even though it costs them more. They put all of the complex assembly in China, but ship the tri-metal from France to protect their intellectual property.

Knowledge@Wharton: Can you take a minute or two to talk about your forthcoming book called *Globality*? What does it entail?

Sirkin: *Globality* is a book that we believe takes a very different perspective on how all of the competition between companies will go forward in the future. Its subtitle says a lot about what it is, which is "Competing with Everyone from Everywhere for Everything." And by that we mean that your competition will change and you will be competing with *everyone* — not just your traditional competitors – [including] new companies from countries like China, India, Brazil, Russia, Eastern Europe, Southeast Asia and just about everywhere.

The second point is that competition will come "from everywhere." Your competitors will no longer look a lot like you. It may be a small company in Indonesia. It may be a large company in China. It may be a big-sized company in India. But, competition will be coming from everywhere and competing for everything. By "everything," we mean for resources, for people, for customers, for distribution systems and for supply chains.

We're expecting a wealth of competition to spring up because companies from low-cost countries are moving from being outsourcing vehicles for the traditional Western multi-nationals, to becoming companies in their own right that are growing and growing rapidly. So you see companies like Tata Steel and Mahindra that are starting to take roles on the global stage, with their own brands and their own products. They should not be ignored.

Globality looks at not just the Western companies, the traditional multi-nationals, but the new emerging companies that are starting to become large and that are challenging those multi-nationals, and what the lessons are both for emerging companies and, more importantly, for the multi-nationals.

Knowledge@Wharton: The book has been written by folks at BCG?

Sirkin: Yes, myself, a colleague from China, and a colleague from India.

Knowledge@Wharton: Before we wrap up the interview today, is there anything that you would like to add that we have not talked about, any important points that you think our listeners should take away from our conversation, and that we haven't gotten to yet?

Sirkin: Yes, the most important point is to seriously consider your procurement on a global basis. Some companies have jumped in too quickly and too fast and haven't thought it through, whereas others are sitting back and saying, "This is a lot of work, and I don't really want to do it." For that last group, I would caution them and say, "If you can get a 20% cost savings in a business that might have a 10% or 15% margin, that creates a massive competitive advantage."

You can forego that competitive advantage, but if you do, one of your competitors will eventually figure it out, and you'll be at a competitive disadvantage. There's a value to going early, and there's a value to making sure that you go slowly enough that you get it right, but quickly enough that your competitors don't get ahead. ❖

Challenges Facing Procurement Organizations

Procurement has become an integral part of corporate performance and is drawing increased attention from senior management. In this interview, Andreas Gocke, a BCG partner and managing director, spoke with Knowledge@Wharton about the most critical challenges facing procurement organizations over the next five to 10 years, including training and employee development, managing global sourcing offices and ensuring collaboration across corporate departments.

Knowledge@Wharton: Can you talk a little bit about the biggest challenges that procurement organizations face today?

> "We did a quick survey about the most challenging topics for the next five to 10 years…people — training and development — was the number-one topic as the key challenge for procurement organizations."
>
> —Andreas Gocke, partner and managing director, BCG

Gocke: BCG did a procurement roundtable with about 30 European CPOs. We did a quick survey about the most challenging topics for the next five to 10 years. Surprisingly enough, people — training and development — was the number-one topic as the key challenge for procurement organizations. That includes: skill development; the right recruiting and retention practices; and career paths in other functions outside of procurement.

Number two was also related to organizational aspects. It was the organization of global sourcing. That is, how to set up and how to manage global sourcing offices. That is also more in terms of processes, a linkage between the global sourcing offices and the headquarters. It's also how the global sourcing offices do work with other non-procurement functions.

And number three is cross-function and collaboration. That is, how does procurement work with not only engineering and quality management — which has been the nature of the procurement department for a long time already — but also with other functions like sales and marketing when it comes to requirements management? That's also with finance and controlling, and that's also with logistics and supply chain management.

These are the top three: people training and development, global sourcing organization, and cross-function and collaboration.

Knowledge@Wharton: Are those three much different from the challenges that faced procurement people 10, 15 or 20 years ago?

Gocke: I would say that 10 or 15 years ago, procurement was still fighting for, let's say, organizational significance. Have they listened and do they have the right organizational position? In most organizations we see right now, this point has been reached already.

There's not so much a challenge anymore for procurement to be accepted as a strategic business partner inside the organization or to be accepted as the adding-value partner in the organization.

So now it's more how to move forward in this significant strategic position inside an organization.

The war for talent [is seen] in all three regions, by the way. It's not only a European or an American issue. "People, people, people" will also face the procurement department, for sure.

Knowledge@Wharton: You mentioned a moment ago that procurement has become more accepted as an integral part of organizations. Therefore, it seems like it's more strategic than ever. Can you talk a little bit about the reasons why that's the case?

Gocke: If you look into major global corporations' profit and loss accounts you see the answer already. The share of material costs and the share of purchased services are growing continuously. We have some comparisons. What kind of external delivery for automotive OEMs, for instance, is like that — the pacesetter of these developments [over] the next couple of years? The ratio is between 5% and 10% in absolute terms per annum over the next couple of years. That's a very quantitative aspect. But if you see the qualitative aspect as well, sourcing now also becomes the gatekeeper for supplier innovation....

The technology competence with suppliers is growing more and more. You can easily measure it by the number of patents which are applied for in many industries. And even in the customer organizations, the supplier will influence our technological development more and more. Therefore, sourcing will be the organizational unit which will manage these aspects.

Knowledge@Wharton: If procurement is becoming increasingly important and strategic, getting back to something that you mentioned, which was retention and development of key people in this area, where are organizations finding the best people? How do they go about doing that and is it a difficult task?

Gocke: This is one of the key questions where we need to confess to not having the right answer yet. CPOs don't have the answer either. Unlike most other functions, there is not the academic purchasing manager education. You don't find, or very seldom find, a master education in purchasing. Very few universities around the world really focus and specialize on purchasing as an education path by itself.

So, we are working with our clients to develop those career paths by themselves. They cannot wait for the outside world. They need to develop it internally by setting up career paths across different functions, by setting up education programs for hard skills — language, engineering, etc. — and also soft skills, which are becoming more and more important, like project management, working in different cultures, and working in different business contexts. These skills need to be developed by your own organization. Don't wait for the outside world to support you on this.

Knowledge@Wharton: And because global sourcing is the second of those three important topics that were discussed at the summit that you talked about a little while ago, it would seem that the type of people that would be best suited for global sourcing would be people with the kind of skills that you just mentioned also a moment ago.

Gocke: Yes, and I would even stress that they have additional skills.... If you need to set up a global sourcing office somewhere in China or in India, it's more entrepreneurial groundwork, so to speak. And the people there need to be much more like entrepreneurs. They need to improvise.

They need to bridge their home organizations — their headquarters — with their local supplier markets. So the intercultural management skills ... are regarded as even more important than that of a domestic purchasing manager.

Knowledge@Wharton: Is being a purchasing manager — or a chief procurement officer, or whatever the organizational title happens to be — a good career path for those people? If procurement is increasingly important, is it a good idea for people to seek those jobs out, if they think that they can do well at them?

Gocke: In terms of status quo, I would be honest and rather critical. In terms of potential, I would be very positive. Let me just talk about the status quo and those managers who traditionally are in sales and marketing. Those who contribute to the top line are still regarded as contributing the most to corporate success.

Those who improve the bottom line [with things like] cost improvements [and] volume reduction ... still have less of a reputation [for] contributing to corporate success. This is changing. As I mentioned in my answer five minutes ago, as purchasing becomes more and more the gatekeeper for innovation of suppliers, for instance, this innovation some time later will result in additional sales.

Suddenly, you have a bridge from supplier — his innovation power — bringing this innovation power

into the customer organization, thereby developing more and more to customers' innovation and thereby contributing to our own corporate success on the top line. So, suddenly purchasing not only becomes a bottom line impact, but also a top line impact, and at this moment the sales purchasing manager has a huge potential.

We see that also reflected in the corporate organizations. More and more organizations in the automotive industry, which is like the front runner in this dimension, have a CPO function on the board level. That had not been the case some 10 or 15 years ago. In most organizations, the CPOs reported either to the chief technical officer, the chief engineering officer, the COO, or the CFO. Now we see that the CPO has his own position in the organization.

Knowledge@Wharton: Let's address the issue, if we can, about the importance for procurement to work in tandem with other functions in the company. Could you say that at one time procurement was more of a standalone kind of operation, off to the side, and that it's more integrated today? Would that be accurate?

Gocke: It depends. If we see the history of purchasing then that would give you a kind of maturity progress. And when we see different organizations across history, we see six different steps. The first step was [something] like "Serve the Factory," if you call that the theme. Purchasing was more in clerical and logistics activities, so these skills were requested.

The next step was more like reaching the lowest unit cost. Call this theme, "Lowest Unit Cost." Here the purchasing organization was [focused on] pushing and pressing the supplier, and negotiating tasks, and that was sufficient enough. Suddenly, [we had] the third step — we will call this theme, "Coordinated Purchasing." Sourcing needed to have the input of other functions to make the supplier-customer relationship better.

In the fourth step, we had the theme "Cross-Functional Purchasing," which is what you asked about. Suddenly, the purchasing department was an equal part across different functions, in which all contributed to the corporate success. Each function was dependent on the other, especially technical improvement leaders like make or buy; like standardization; like design to cost and process improvement leaders; [and] like demand bundling. So, to enable those leaders, you need to have cross-functional work, where purchasing is across engineering, quality management, and sales/marketing.

The fifth step is "World-Class Supplier Management," and here you have even more of an intercultural aspect. And, the sixth step, which we regard as the highest aspirational level, is "Entrepreneurial Purchasing." And with entrepreneurial purchasing, purchasing behaves like a cost and profit center as well.

And so, they are building up supplier networks by themselves. They are offering supplier networks to the rest of the organization. They bring in ideas. They are the gatekeepers of suppliers' ideas into the organization. So, purchasing is not reacting to the organization demand, but it is vice versa. Sourcing brings in its own initiatives and thereby triggers the rest of the organization.

Knowledge@Wharton: That's a very important point. A few minutes ago, you mentioned again as one of those important themes that emerged from your meeting on global sourcing: Does global procurement, in your view, demand any special skills or organizational needs?

Gocke: Yes, and I think that's the reason why many organizations … are not where they want to be with regard to global sourcing. Global sourcing is not just identifying the Chinese supplier in mainland China, signing the contract, and that's it. It's the need to change the entire sourcing process.

What do I mean by that? If you are really taking global sourcing seriously, you need to sometimes extend your development process to allow a longer screening phase from your suppliers, to allow longer trial periods with new suppliers, etc. If you don't reflect that in your incumbent processes, you will not have success with global sourcing.

And this also then comes into play for the need in the organization to reflect those requirements in terms of processes. So you need people and also departments who know how to deal with those challenges. For a global sourcing organization you need to ensure that the global sourcing offices around the world have equal power with their, let's say, competitors inside the headquarters organization which do domestic or just regional sourcing.

You sometimes need to have more resources because you need to write specifications sometimes in the language of the global sourcing country, like Chinese. In India it is mostly English, but in China,

it's a huge challenge. Eastern Europe is also a huge challenge. You need maybe more resources in terms of supplier qualification management. So in terms of skills, resources, and new processes, organizations need to learn more.

Knowledge@Wharton: You're based in Munich, Germany. Do you see any significant differences between the way companies in Europe and companies, say, in North America approach the whole topic of purchasing?

Gocke: Yes, in maybe two dimensions, I would say. For the first dimension, I'm rather sure. The second one is still at the hypothesis level. The first one is the openness toward global sourcing, since Europe has its global sourcing market directly next door, which is Eastern Europe. And let's say Western Europe [has become] used to working with Polish, with Czech, and also with Turkish suppliers [over] the last 30 and even 50 years. It's still a huge challenge to expand this global sourcing level toward Asia.

And that's the big difference with U.S. purchasing organizations. They might have a link toward Mexico in the NAFTA region. But this is not comparable to dealing with 10 to 12 different Eastern European countries — including Turkey — and then [expanding to] 13 or 14 countries. This is the difference.

Number two is that there might be a slightly different understanding in terms of supplier-customer relationship management in Europe compared to the U.S., especially with the automotive industry. The openness for more trustful supplier-customer relationships is slightly higher and more developed in Europe.

But we see that the "Big Three" in Detroit are also opening up more and are seeing some successful models in Europe. They have learned that they cannot rely on those supplier-customer relationships which are doomed to fail because they are just built on market power.

That will not be successful and the result, unfortunately, is that many tier one suppliers are close to bankruptcy and are not managed well. There needs to be, I would even say, a turnaround management for most of the relationships.

Knowledge@Wharton: Well, from everything that you have discussed today, it certainly sounds as if purchasing will only become more important in the years ahead, for organizations of all kinds.

Gocke: Yes, I'm pretty sure of this. The technology industry and the automotive industry — I think they have already put sufficient emphasis on the procurement organization, and their reputation is higher. As I mentioned, we have a CPO on the board level. We have cross-functional teamwork. We have more and more sophisticated supplier-relationship management tools and also processes.

And now [it's spreading] to other industries as well, like the machinery industry and also the utilities-supplier industry. So, I definitely agree with your observation that purchasing will become more and more relevant in strategic function. ❖

Global Supply Chain Strategy

Marshall L. Fisher, director of Wharton's Fishman-Davidson Center for Service and Operations Management, has been researching issues related to retail supply chain strategy for many years. In this interview, Fisher highlights some of the challenges facing global procurement, and he discusses the example of Luen Thai, a Chinese company that built a giant "supply-chain city," becoming a one-stop shop for clothing manufacturers looking to outsource to low-cost producers.

Knowledge@Wharton: Before we began recording our conversation, you were talking about some of the interesting and far-reaching changes that have occurred in the area of procurement in the last 10 or 20 years. Can you tell our listeners a little about that?

Fisher: I'd be happy to. My knowledge on this is based on working with a number of U.S.-based product companies on supply-chain strategy and I've been struck by two phenomenons: outsourcing and offshoring of their manufacturing operations.

In the 1980s, thinking back a couple of decades, there was a pretty vigorous debate within the U.S. about the need to strengthen and preserve U.S. manufacturing. This is a time when the Japanese economy was in its ascendancy, and it was believed that was due to their prowess in manufacturing. The belief was that you couldn't have a viable economy, particularly the U.S. economy, without strong manufacturing. So the message was: Keep manufacturing in the U.S. and make it stronger.

Boy, things have changed a lot in the last two decades. Most companies now are outsourcing and offshoring manufacturing vigorously, almost to the point where you will find companies that don't make anything themselves or in the United States. It's going to low-labor-cost regions, predominantly Asia, Eastern Europe and Latin America, and, within Asia, predominantly China.

I wrote a case on a very interesting Chinese company called Luen Thai, based in southern China. They're the largest private-label apparel manufacturer, so they make for large retailers [like] Gap, Limited, Dillard's, or branded apparel companies like Liz Claiborne in the United States and some European companies.

And they've done a phenomenal thing. They've set up this supply-chain city, which is a massive facility, probably the largest apparel production facility in the world, intending to leverage a change in trade regulations that happened Jan. 1, 2005.

Prior to that, apparel production was heavily regulated. There were quotas as to how much any country could export to the United States by various categories of apparel, which caused apparel to be spread all over the world. But basically, [it was] a fragmented supply chain with production in lots of different countries because no one country had enough quotas to supply the industry needs.

That quota system was ostensibly eliminated Jan. 1, 2005. And if you look at other categories, say toys [or] consumer electronics, where there is no quota, you'll see something like 80% to 90% of the production coming out of China. So Luen Thai believes that's going to happen in apparel and they set up this giant supply-chain city to leverage that.

Knowledge@Wharton: Now this giant city that you've mentioned, that's very interesting because that was a step that Luen Thai took after looking at the landscape for world manufacturing and coming to a certain set of decisions as to how it was going to respond to these changes. What sorts of challenges has Luen Thai faced and what

have they done, in addition to building this large city for its workers and its production? What sorts of things has Luen Thai done and what kind of takeaways might there be for our listeners who want to learn more about the way a giant Chinese company goes about doing its business in this kind of environment?

Fisher: Well, some of their challenges are perhaps unique to apparel. So in that category there's a lot of political pressure to continue some form of restriction on apparel imports. There's a provision called safeguards that limit [and] that kind of put back quotas to some extent.

That lesson is less transferable to other cross segments where you don't have those same restrictions, such as toys and consumer electronics. The other thing they have been struggling with, which might translate to other industries, is essentially, what's the best place to locate various functions? So you think about all the steps involved in sizing up a market, designing a product, and then producing that product. What gets located where?

So Luen Thai's original vision is: "We'll do it all in China. We'll do design in China. It'll be one-stop shopping for apparel buyers. So they'll fly over, we'll give them really nice offices just like their offices back at home, and we can quickly design a garment, make a prototype, get that critiqued by the buyers, and redesign it within a few hours." This is a process that used to take a few weeks to go around that iteration loop.

What they found out is that total outsourcing from original conception of the design of a product through production and delivery to the store — they call it design-to-store — doesn't work. Why? Number one, designers don't want to live in southern China. They want to live in the fashion capitals [like] Manhattan.

Knowledge@Wharton: Sure.

Fisher: So it's hard to get creative people to go there. The Chinese are turning out their own designers, but they don't have the reputation and probably not the skill of U.S. designers. And then secondly, it helps a lot to be close to the market. So they've been evolving close to the market you're designing for, to understand the end-consumer. So they've been refining that concept and their thought is that there's a … customer-facing aspect of design. In apparel, what's the artistic look of the garment that would appeal to a particular customer's look and feel?

And then there's a production-facing design. For example, a garment is a three-dimensional object made from two-dimensional pieces of cloth. So there's an engineering function called pattern-making that translates that three-dimensional object into a series of two-dimensional shapes cut out of cloth. That engineering-production-type step could be done in China with an interface between them.

So as supply chains become global, companies need to think about what they put where and how they coordinate across those various functions.

Knowledge@Wharton: And in the case of Luen Thai Holdings, that was a major decision, was it not?

"…design-to-store [outsourcing] doesn't work. Why? Number one, designers don't want to live in southern China. They want to live in the fashion capitals [like] Manhattan."

—Marshall L. Fisher, professor of operations and information management, Wharton

Fisher: It was absolutely a big bet. They're a fairly old company, and they had thrived under the old quota system. One of their people joked that if you had a sewing factory and owned quota, which is the right to export to the United States or Europe, it was like a license to print money. And we printed a lot of money. But [after] Jan. 1, 2005, that quota system was going to go away, so their license was about to be revoked.

And several years prior to that, they started thinking, "Life is good, but we can't continue in that old way because this elimination of quota is going to change things, so we need to have a plan." And this was their answer.

Knowledge@Wharton: Now, did Luen Thai have any difficulty convincing its customers in North America and Europe and elsewhere that this "design to store" concept would work for them?

Fisher: Absolutely, because apparel buying is highly cost-driven. Why? Cost is very visible, so

a buyer knows whether or not they're getting the lowest cost. If they pay a higher cost, but they get additional service, well, it's hard to evaluate what those services are worth. It's a qualitative judgment, which is harder to size up.

So there's a bias toward basing decision-making on the tangible, highly knowable cost. And buyers will move production for a few pennies a garment because it's a highly competitive, cost-driven industry. It's sometimes called "chasing the cheapest needle."

And you'll see apparel is a great way for a country to move up the economic ladder because you can start out making easy-to-produce stuff like T-shirts. It's very easy to find used sewing equipment [and] low-skill labor, so any underdeveloped country can get started that way.

But then ... they move up the ladder.... China was there maybe 20 or 30 years ago, but gradually over time, they've moved way up in their skills and sophistication. And with it, wages have moved up, so China's no longer the dirt cheap, lowest cost production site. So what you see happen is companies will move to a much less developed country, maybe Bangladesh ... because wage rates are lower [and] you get lower production costs — "chasing the cheapest needle." So it's hard to compete on service in a cost-driven industry. That's one of the challenges that Luen Thai has faced.

Knowledge@Wharton: That's why the company had a bit of a challenge in store for it when it tried to convince its customers that their model ...

Fisher: Yes, they did. They absolutely did. Their concept, I think, makes sense. You look at the costs to design, produce and deliver a garment to the store. Only about a third of that cost is manufacturing cost, and that's the cost that all the buyers gravitate to. The other two-thirds are soft costs: design, logistics, handling, [and] transportation. So Luen Thai wants to attack that other two-thirds and try to improve on that.

Knowledge@Wharton: Is the model that it has devised being copied by other manufacturers in low-cost countries?

Fisher: I think it's almost the other way around. In industries like consumer electronics, which have not had the same degree of trade restrictions as apparel has had, they're much further along in the supply-chain-city concept.

I'd visited Luen Thai in the summer of 2006 and [on] that same visit I spent a day at a Chinese company, Taiwan-based, in the U.S. called Foxconn. In China, they'd be called "Hon Hai." And I'd not heard of them previously. I was surprised to find out they're about $32 billion in revenue. They'd be a Fortune 50 company if they were based in the U.S.

They produce all of the branded consumer products. So they produce for Dell, Motorola, and Apple — you name it — all the well-known companies. This is one of 12 facilities, and I was struck by the size of it. And I asked somebody how big it was, and they said, "Well, let me put it this way. You came in the front gate, and if you'd started walking from the front gate toward the back gate, it would take you 45 minutes to get there." So [with] 245,000 employees, [it's] literally a city [with] their own police force, hospital, [and] school.

Knowledge@Wharton: That's remarkable.

Fisher: It's remarkable what's happened. I was truly shocked at the scale of outsourcing, offshoring, the degree to which China has become a juggernaut, almost resembling Japan in its ascendancy in the 1980s.

Knowledge@Wharton: That's an interesting point. And of course, Japan, which began post-World War II as a low-cost manufacturer, grew its economy tremendously ...

Fisher: Yes.

Knowledge@Wharton: And moved out of that bracket to become the world's second-largest economy. Do you see the same thing happening for China? Are there any differences with the Japan experience? Or is China mostly similar to Japan in the way it's growing its economy now?

Fisher: That's a very interesting suggestion. I'm sure there are differences, but I'm struck more by the similarities. It looks very, very similar. Post-World War II Japan was very, very low-cost labor. "Made in Japan" was, at the time, synonymous with low quality. China, in the 1980s, looked the same way. Now, 20 years later, China's synonymous with high quality, just as Japan became synonymous with high quality. It looks very similar. It's almost following Japan, 30 years lagged.

And they're starting to have some of the problems that Japan had as they became more prosperous and it was harder for them to compete at low wages. China's running into rising cost pressures.

There was a student of mine. His name is Gang Yu [and he] grew up in Wuhan, China, got his Ph.D. at Wharton, taught at the University of Texas for a while, and then left [as] the VP of supply chain at Amazon, and now he runs Asian sourcing for Dell. So I stay in touch with him.

And when I got back [from] this visit to Foxconn, I was truly blown away by what a powerhouse China had become. And he said, "Well, don't worry too much. We've got our problems in China." And he talked about rising costs [and] lack of labor availability — so it was labor scarcity pushing up costs – [which were] some of the same things that began to afflict the Japanese economy in the early 1990s.

So it will be interesting to see. Maybe "interesting" is too weak a word. It will be highly important to see what is going to happen in China.

Knowledge@Wharton: Well, China of course as you well know has faced a lot of bad publicity here in the U.S. and elsewhere for shoddy products being shipped to the United States, is that a reason for ...

Fisher: They are second only to Wal-Mart in the bad press they are getting.

Knowledge@Wharton: Is that a reason for concern on the part of their customers here and elsewhere who might have turned to China in the explosion of outsourcing abroad only to find that there have been some serious drawbacks. I mean how should customers here in the U.S. and Europe and elsewhere think about these problems that China has had with quality?

Fisher: I am not sure whether their quality problems are any more frequent or greater than if those same products, say 40 years ago, were being produced in the United States because there would be quality problems then, too. You may recall there was a big tire recall in the U.S. 10, 20 years ago. So that is kind of point one. I don't really know the objective facts on whether this speaks to substandard quality coming out of China. It is a different government regulating quality than when you are producing in the U.S. and it was your government, the U.S. government, regulating it. So I guess the phrase, "Trust but verify," would come to mind.

Knowledge@Wharton: Before we end our conversation, I did want to loop back to something you began discussing in the beginning of our talk which was the tremendous change in outsourcing in the last couple of decades. Do you think that companies in North America and Europe and other developed countries have responded well in seeking out countries like China and India, etc? Have they mostly done the right thing in finding the right partners to do business with and in approaching that issue in the right way? Are they getting the most benefit from it or are there still areas where there could be some improvement on the way firms in developed countries go about their purchasing and procurement activities abroad?

Fisher: Well obviously, the answer to your question is "yes" and "yes." It is a complex subject, but on balance I think that they are doing more things right than wrong, but of course there is always room for improvement. Having looked through the 1980s and teaching operations management at Wharton, it was almost like a religion that ... real men did manufacturing and real economies did manufacturing. And so it was troubling to me the idea of hollowing out the U.S. economy.

But if you think it through, all work — this is a slight oversimplification, but not much — can be divided into muscle work and brain work. And so what we are doing right now talking to each other is mostly brain work. A lot of manufacturing is a blend of the two, but many types of manufacturing are more muscle work than brain work.

So brain work tends to pay better than muscle work. So if an economy wants to ascend, it has to be carefully managed, but it makes sense to offshore and outsource the muscle work to low-wage-rate countries and retain the higher-margin brain work. So in manufacturing product companies, that would include things like market research and product design.

Now that certainly makes sense, but you better be very sure that you are excellent at the brain work. It is not enough to say, "We are going to do the product design and marketing and then produce me-too products or ho-hum, uninteresting products." You've got to really be world-class at that.

Because these low-cost-labor countries that we are outsourcing to, they want to get into the brain-work game, too. So you see Chinese companies, for example Foxconn on their corporate video. They started out in 1970 making TV knobs, if you could believe that, the most pedestrian product you could think of. Now they have gone to making really high-tech stuff, but it is largely based on low-cost labor. They want to get into innovation.

So, it is a little bit like riding a tiger, I think, that in outsourcing to low-labor-cost countries you get a short-term benefit, but there is the risk you may be spawning a competitor.

Knowledge@Wharton: That is an excellent point, and is it one that firms in the U.S. and Europe are going to have to worry about in the next five to 10 years? As you well know there has been a lot of political consternation over the quote-unquote loss of jobs in America to low-cost countries if indeed the brain work, so to speak, is going to be the next challenge to be faced by, say, U.S. firms. Is it a real reason for concern? Could the Chinese and India be critical competitors to U.S. companies in that area?

Fisher: Absolutely they could be. I think the key to a prosperous economy is to compete on things that pay well. Brain work, I think, pays well. I think implicitly or explicitly by outsourcing labor-intensive activities, anything from manufacturing to call centers, to low-labor-cost countries, the U.S. is moving down a path of competing on brain work. But that implies a whole bunch of things. Like you better have a very good education system or else segments of society get left behind in the U.S. So there are a lot of challenges I think our economy is facing.

The education systems in foreign countries are quite good. Right now, labor rates are low there. They're also low for professional services, so you are seeing brain-work-type activities getting outsourced to low-labor-cost countries, not to laborers but to engineers. So software going to India would be an example.

Knowledge@Wharton: Is there anything in terms of research that you're working on now that might be pertinent to what we have been talking about? You wrote the case study on Luen Thai, which you shared with us today. Is there anything else that you are working on right now that might be of interest to readers and to follow up on when that project is completed?

Fisher: Right now, and really for the last decade, my research has been focused on retail supply chain management and I've been led to be intrigued with and aware of these global issues because retail supply chain management has come to mean global supply chain management. So I haven't focused explicitly on that in my research, but I was so intrigued with this, I am planning to introduce an MBA minicourse next year on global supply chain management, almost as a way to launch a next wave of my research on that topic.

There is a joke that the first time a course is taught, the instructor learns. The second time, the students learn. And this is probably overly harsh, but then the third time, nobody learns.

Knowledge@Wharton: Well, they move on to something else. ❖

Building Customer-supplier Relationships

In the never-ending quest for cost savings, many companies have reduced the number of suppliers they use, consolidated their purchases, and negotiated better prices. So, where can chief procurement officers and other managers now turn for savings? In this interview, Bob Tevelson, a BCG partner and managing director, says firms must segment suppliers to identify those that can deliver what he calls "partnership value" by establishing relationships that move beyond the transactional level.

Knowledge@Wharton: Many companies have already reduced the number of suppliers that they use and consolidated their purchases and negotiated better prices. Where do you think the next level of cost savings will come from in procurement?

Tevelson: I think many companies have, in fact, reduced the number of suppliers they work with significantly, but I still think there is an opportunity to do more. I think what the next level of benefits will accrue from is looking at the suppliers that are used, the smaller subset, and really segmenting those.

What I mean by that is breaking them into different groups in terms of what we're looking for from the suppliers and taking the supplier-relationship management to the next level, which is to segment based on what the suppliers can do versus our objectives, and then being willing to invest in those suppliers to be able to drive value.

Knowledge@Wharton: What are the biggest challenges that companies face today with regard to suppliers?

Tevelson: I think the biggest challenge is to be able to segment the suppliers into those that are really meaningful and can deliver partnership value. What I mean by that is moving beyond the transactional, moving beyond getting a better price, [and] moving to some of the more interesting areas around real collaboration [and] trust-based relationships.

Also, taking the focus beyond the transactional [and] beyond the day-to-day, looking at what the supplier can do from an innovation perspective to drive where the company is focused from a strategic perspective, and also focus on driving performance to the next level.

> "The next level of benefits will accrue from looking at the suppliers that are used, the smaller subset, and really segmenting those."
> —Bob Tevelson, partner and managing director, BCG

Knowledge@Wharton: You've raised some interesting issues, so let's pause for a second and talk about how supplier relationships have changed over time and some of the changes you've seen happening. What has been the genesis for that? Why have companies changed their relationships in recent years?

Tevelson: I think they've been forced to change. If you take the automotive industry, for example, and the economics they face — a couple of years ago, when profits were up, the focus was all about partnering, tight relationships, and sharing benefits and innovation. Then, when the chips are down, the focus is more on the dollars and more on price.

And so, there's a natural ebb and flow cycle to relationships. I think what companies are finding now is that margins are pushed down to where suppliers are making a reasonable profit and getting a reasonable return, [and] that they need to find other ways to get more value from the suppliers, and it goes back to segmentation. Who are the core suppliers you want to work with? Why do we want to work with them? What can they do?

What they can do is beyond price. It's innovation, it's helping us go to market, and it's working with us to understand our business better and identifying best practices.

Knowledge@Wharton: Are there differences among industries? You've mentioned, for instance, the auto business, which is certainly one that we read about all the time in the press, trying to control costs through their relationships with suppliers. But are there differences, say, between the auto industry and other industries?

Tevelson: I think there's a significant difference, and you'll find relationships varying by industry. If you take the automotive industry, it's more arm's length. High-tech is more integrated. It's more integrated because obsolescence happens so fast that we have to have tighter relationships. We also have to leverage the capability of suppliers to be able to drive product development, innovation and the fast cycle times in the supply chain.

Knowledge@Wharton: Does that mean that, necessarily, things are more difficult, say, for high-tech firms as opposed to autos, or is it just a matter of difference and not really levels of difficulty in managing these relationships?

Tevelson: I think the value is different and what the suppliers can do is different. But also, history is different. So, the automotive industry is starting from a base where there's less trust because there's been this great focus on price and making agreements and then pushing suppliers further. With the high-tech industries, for example, there's more collaboration.

Another example would be the pharmaceutical industry, where some partnerships are emerging even in mundane categories like packaging. Companies are working with their packaging suppliers to differentiate not only based on marketing opportunities, but [also] based on the customer experience with the package from a safety perspective [and] from an information perspective. And ultimately, what the pharmaceutical companies are interested in is the patient using the prescription, persistence and compliance.

Knowledge@Wharton: You mentioned trust, which is something we want to talk about in a moment, but how can companies prepare for the changes you've described, and what will these supply relationships look like in the future?

Tevelson: I think companies can prepare by undertaking some basics of understanding their supply market and then understanding from that where they need to go with the business. So, how can procurement contribute to the company goals? And therefore, what do our suppliers need to do? Then, setting kind of a baseline as to where we are from the starting perspective, what are we securing from a value perspective, and what do we really need to get from our suppliers going forward?

Knowledge@Wharton: What will those relationships look like, do you think?

Tevelson: I think the word "partnership" is always thrown out, so lawyers jump in and they get all upset about the implications of that. But I think what you'll find are tighter, longer-lasting, integrated relationships that are based on trust [and] ... information sharing, while the contract will sit behind and ensure the right incentives are in place on both the upside and the downside. I think you'll see more integrated relationships [and] deeper investments by both parties with fewer suppliers.

Knowledge@Wharton: Can you talk about the importance of trust in relationships and maybe even discuss the possible consequences that can arise when trust is lacking or is weak?

Tevelson: That's very interesting because I don't believe personally that a good, deep, collaborative relationship can exist without trust. I think it's a table stake that one has to have going in. If you don't, one is always holding back either information or opportunities. If you don't have good collaboration, too much energy and focus is concerned with whether the agreement and the situation is fair. I think that undermines the ability to really drive forward and get after the most value.

So again, I think it's a starting point that has to exist. You segment your suppliers. Are they important from a strategic perspective to the business, and where are they along the continuum on the trust matrix? What do we need to do [to] move it to the right place?

Knowledge@Wharton: Do you think, in general, that trust has eroded between suppliers and their customers in recent years, and if so, why do you think that's happened?

Tevelson: I think it varies by industry, and in the automotive industry there has been clear erosion. In some of the high-tech industries there has been less. You also need to think about the whole movement of supply chains and supply sources overseas where these long-term relationships may exist.

Lower-priced suppliers, perhaps without the same sophistication, are brought to the fold. Then you get a conflict between the value a domestic supplier can provide around innovation, around speed, and around helping their customers operate more efficiently and effectively versus the offshore supply base, which has a great advantage around price but not necessarily leading-edge innovation or speed in the cycle chain, the supply cycle.

Knowledge@Wharton: What types of value—a word again that you mentioned a little while ago—can advanced supplier relationships offer?

Tevelson: I think value is really changing the rules of the game. If you're effective at procurement, you've already pushed down pricing with your supplier to the point where they're making a reasonable return. [If you] push it too far, they're not going to be happy or a long-term supplier. It's really around driving changes in supply chains — opening up the information-sharing and looking at how we can change the interface, how we can change processes to take out time [and] take out inefficiency and cost.

Also, how can we change what we buy so that we may be able to take advantage of specifying to needs versus wants and coming closer to what the customer needs versus overdelivering? Suppliers have a lot to offer when asked the question, and I think it's critical that you have these types of relationships so that you leverage that insight. They have a good perspective, and it's only a value if it can be leveraged.

Knowledge@Wharton: If we can try to pull all this together, what do you think the common themes are for success in these very important relationships?

Tevelson: I think there are a couple of things and I'd start with clear segmentation of suppliers. You can't have deep, collaborative relationships with all your suppliers, and you need to really identify which ones are the players. The second issue is senior management buy-in. And while it seems obvious that in many corporate initiatives you need to have that, I'm talking about buy-in to the point of differentiated investment and investment in terms of dollars, investment in terms of senior management time, participating in conferences, [and] participating in discussions with suppliers directly and indirectly.

I think the other issue is developing a track record of success, being able to identify prior successes, perhaps pilots or case studies that can be communicated and provide justification to extend the program. Another key is treating the suppliers well. They have to have some vested interest in participating, so the benefits, the savings, the improved cycle times, [and] the opportunities need to be jointly shared.

I'm not sure if it's a 25, 50, 75 sharing, but at some point the suppliers need to have an incentive to participate, which is my last point. [You need] common objectives — common objectives internally, common objectives with the suppliers, and [you need to] make sure they're aligned incentives. We all know what we're going after and we know why we're going after it, and then there are incentives to support that.

Knowledge@Wharton: Are there any issues that we have not discussed that you'd like to bring up? For instance, I don't know if we've really talked about price volatility and how that can affect supplier relationships. Maybe there's something else you'd also like to bring up?

Tevelson: I can talk about the price volatility and also supply-chain risk, which is somewhat related. In terms of supply-chain risk, these tighter supply relationships enable companies to share and develop contingency plans. So, you may choose to go with one supplier, but work with that supplier to develop a contingency plan around what will happen if there's a natural disaster. Then, from a price-volatility perspective, it's really hard to have a collaborative type of relationship if the risk is disproportionately burdened or borne by one of the two parties.

So often, when there's a lot of volatility in the pricing or economics of the relationship, you can establish some type of risk-sharing and the right level of divisibility so that no one is taking on an undue burden of that risk.

Knowledge@Wharton: Can you think of a real-world example where volatile prices have led to some kind of friction in a relationship, and how it was resolved?

Tevelson: Actually, I can think of a couple. The one I like the best was in the appliance industry and it was around the supply of some critical metals. There was a longstanding relationship in place and people were happy, in terms of the buyer side, with the ability to buy at a fairly low price historically. Then when the markets got tighter, things seemed to change. The partners were both happy, but when there was an opportunity to share what became a scarce capacity with other buyers who were willing to pay a bigger price, a conflict ensued.

You have a longstanding relationship focused on quality, service and delivery undermined because, on the margin, there was opportunism, and the relationship fell apart quite a bit, actually.

Knowledge@Wharton: Is that the exception rather than the rule these days?

Tevelson: I think in many cases the price-volatility issue, which is really topical at the moment, is addressed through transparency, so the commodity nature typically can't be influenced by both parties. There's an index and the price floats to that. And where there's a reasonable way of resetting the price based on an objective measure, the parties can work together and not be arguing over something they can't control. ❖

Sourcing from China

Multinational corporations have been sourcing from China for years, but that doesn't mean that all the questions have been answered about how to engage in procurement activities in the world's fastest-growing economy. In this interview, David Lee, a partner and managing director at BCG, says that plenty of challenges remain. Among them: finding good suppliers that offer products at relatively low costs, and being willing and able to outsource a sufficient volume of one's business to Chinese suppliers.

Knowledge@Wharton: We'd like to talk to you a little today about China sourcing. As you well know, that's a very important and particular issue of interest to companies around the world. Can you begin by giving us an idea of how China sourcing differs from sourcing in other parts of the world?

Lee: I think China sourcing, to a certain extent, is very similar to a lot of the low-cost country sourcing or overseas sourcing. There are some things that are particularly different because China is still going through a lot of transitioning right now. So, there are a lot of issues that need to be addressed. For example, Chinese suppliers do not always have the same capabilities and the quality level can be highly uneven.

But on top of that, we have a very non-transparent supplier market. We don't have, for example, a lot of the supplier databases that you would like to have in the Western world. When they first come to China, the first major problem a lot of companies face is: Where do you find a good supplier? There are definitely a lot of suppliers out there, but whether you can find a good one will be a big question.

And, of course, China is going through a lot of changes as we speak. Chinese culture, historically, is slightly different from the Western world in terms of language, in terms of culture, and in terms of the business norm because we are still going from a planned economy to a more open economy. All of these things are changing. I think one of the interesting things that a lot of Westerners will always say is, "When a supplier says yes, they don't really mean yes. They are just very polite."

Knowledge@Wharton: A moment ago, you said the lack of transparency can be a challenge for companies that want to source in China. How do organizations go about surmounting that challenge?

> "When they first come to China, the first major problem a lot of companies face is: Where do you find a good supplier?"
>
> —David Lee, partner and managing director, BCG

Lee: I've personally done a lot of sourcing in the West and also in China. In the West, things are relatively easy in terms of identifying the supplier market, so you can always go to some database and download a list of suppliers that are capable.

In China, there's no such database. Everybody says they have some database, but our experience has been that most of the databases are about 50% wrong and then another 10% to 20% are outdated. So, you never really can find a very good supplier database.

Often, you need to do a lot of legwork before you can do the sourcing activities. This becomes very dangerous and very difficult for a lot of people who have no experience working in China. We have seen in a number of companies, when they do China sourcing, instead of casting a wide net to find the right supplier, they usually follow whoever your competitors are sourcing from and go find those suppliers.

So, we see that the good are getting better and the worst are still staying there without being developed. We see that quite often in the automotive sector. At the very beginning, five, six or seven years ago, when foreigners started coming to China to source, they all came to the same place. They all sourced the same parts.

Nowadays, with the supply base getting much more capable and the local demand getting higher, we see suppliers being developed to a certain level that some are actually supplying to Western companies for future models, which is a new thing in China.

Knowledge@Wharton: If an organization is dissatisfied or unhappy with the results of their China sourcing programs, what should they think about doing to improve their results? And secondly, is there any industry against which they can benchmark best practices, to try to find a good example to follow?

Lee: I think those are very interesting questions. First of all, when you say that a company is not doing well in China sourcing, there are usually two issues. Number one is they can't find good suppliers that can supply them at a relatively low cost. Number two is they can't move enough volume over to China. I think that these two things are usually interlinked, but they can also be separate.

What we have seen is that China has a lot of good suppliers that are capable. And in a recent survey with a number of China sourcing office directors, what we have seen is that the savings ranges from 10% to 60%. And on average usually it is about 20% to 30% on most commodities. If it is less than 20% then it usually doesn't really make sense for you to source in China.

So, Chinese suppliers definitely do offer significant savings potential. But when we talk to these companies and ask, "Why don't you source more from China?" the consensus is "because our headquarters is not willing to send more volume." If you use baseball terminology, the catcher is always ready to catch but the pitcher is not ready to throw the ball. These are some of the issues that we see time and time again across all industries and across all companies.

We think that these are the major issues. Of course, if we talk to the R&D people, the engineering people, [and] the quality people at their headquarters, there are always reasons why they are not 100% willing to move their product over there. Extending the supply chains [and] the risk with changing suppliers — all of these are risks. But the question of how much risk each company is willing to take will determine how successful they are in the China sourcing arena.

Knowledge@Wharton: Despite the challenges that exist in China sourcing, I assume that you would say it's still well worth it for companies to pursue China because they can really reduce their procurement costs. Is that accurate?

Lee: I think that would be right. But I would probably go a little further. If you don't go to China and if you just stay with your incumbent suppliers, your competitors will not stay with you. Your competitors are going to move to China anyway. So, "What are you leaving on the table?" would be a question.

We already see that a lot of suppliers in China are getting to a kind of scale that is unheard of in the West. And they have the capability of eventually migrating to overseas markets and start attacking your home turf. So, having a China sourcing team over there, number one, can help you close that gap. Number two, it will also help you understand the supplier market dynamics so you can plan accordingly.

I think that recently BCG has worked with a number of clients that are expressing concern about "all of these Chinese [and] Indians" — or, in the old days, the "low-cost-country suppliers" — that are emerging very quickly and now they might be changing the dynamics of the markets.

Knowledge@Wharton: You mentioned a moment ago that of course you have a lot of experiences that you can discuss regarding BCG clients. I know that you're probably reluctant to identify them. But can you think of an example of one of your clients which is doing procurement very well in China? And, perhaps you could give an illustration of why they are doing so well and what kind of steps they have taken in that area?

Lee: I can think of one very recent example. An automotive company came to China about five or six years ago to set up their China sourcing office. At the time, not that many people were thinking about China. But over the years they have increased their China sourcing volume substantially.

It's still relatively small — around 5% to 10% of the global total spent. But it's substantially higher than some of their competitors. How did they do it? When they came to China, instead of just looking at the supply base, they knew very well that in automotive, with the stringent requirements in the West — the PPAP, the APQP — all these things are pretty much a foreign language to a lot of the Chinese suppliers.

As a result, they've developed a huge supply development team focused on helping suppliers get up to the company's standard and also up to the automotive standard. Through this process, they were able to develop suppliers that are much more loyal to them. Number two is that they are able to work with suppliers that are not locked in by their competitors because they were not the first one to move to China in terms of the automotive sector.

By doing so, they have created a supply base that over the years has blossomed quite substantially. And after five or six years, they are sourcing up to 5% to 10% of their volume from China. This is quite substantial for automotive companies, given the JIT requirements that you can't source everything from overseas. So, I think that this company basically entered into this particular angle by leveraging supplier development.

Knowledge@Wharton: What sorts of benefits has this company particularly seen from its efforts in China? Can you tell us how much they've saved in terms of costs and other things that they've achieved?

Lee: Well, I think there have been substantial cost savings. And of course in the automotive area, what we have seen quite generally [is that] in most of the companies coming over to China to source automotive parts, in terms of casting toolings, they can save up to 40% to 60% from the cost that they would have paid if they were made in the U.S. or in Western Europe.

If you are talking about harnesses, if you are talking about aluminum wheels — some of these products range from the low teens to about 30%. So a wide range of products really depends on what kind of products you want to source and how well you're sourcing.

Knowledge@Wharton: What are some of the misconceptions about sourcing in China that companies might have before they embark on that kind of an endeavor or when they are just getting into it?

Lee: I think that the one major misconception is: "Well, we need to go to China. Let's build a China sourcing office and once you finish cutting the ribbon, that everything [will be] business as usual." We have seen quite a number of cases in a lot of Western companies when they come to China that way.

Yes, of course you will always save money from China. You will always increase maybe 10% to 20% annually. We have seen a lot of the good companies doubling every two to three years in terms of their China sourcing volume. Given that you are starting from a very, very small percentage of turnover being sourced from China, unless you have quite a substantial increase in volume like this, you will not have a major impact in your organization.

I always work with our clients to give them an estimate. Usually it would take you years just to get 10% of your volume sourced from China. You are talking about, on average, saving about 20%. So that is probably about 2% impact on your EBIT. This is quite substantial, but it takes years for you to obtain.

The question for a lot of companies is, "How can I go beyond 10%? How can I go to 20% or 30%?" This will require a lot of commitment, not only from the CEO, but all the way to the operating-level people. A lot of the disconnect we have seen in the past is that the CEO will tell Wall Street about one thing, and then the operating-level people have no idea how he came up with all these targets. And as a result of this, they gave up. We have seen that happen all the time.

Knowledge@Wharton: Is there anything else that you would like to talk about to give our listeners an idea of what the current hot issues are in terms of sourcing and what the next couple of years are likely to look like in the area of procurement?

Lee: Well, I think the major issue that we have seen in the past — and probably will [see] in the near future – [is] convincing headquarters or convincing your technical team that China is a viable source. I think a lot of companies have found different ways to achieve that. Definitely, there are a lot of internal marketing tools that the China sourcing team leader is implementing in China, and [is] actually going back to the U.S. and to Europe to do a lot of

marketing or a "road show" to tell everybody how great Chinese suppliers are.

We have seen some companies doing what they call "China Supply Day." They fly a lot of their executives, including the quality people [and] the engineering people, to China to look at all these suppliers and have a sourcing conference in China.

One company has flown in about 70 people from all over the world to meet with 200 selected suppliers. And through this week of meetings, they have arranged about 400 face-to-face meetings, one on one, with some of these suppliers. As a result of these activities, they were able to increase the amount of sourcing.

I think given that I'm based in China right now, a lot of things don't really surprise me anymore in China. But I remember when I was still working in the U.S. that a lot of the image of China was very backward — [that it was] not very automated, that machinery was rare, and that you basically have a lot of sweat-shop work. And I think this is far from the truth right now.

A lot of suppliers are extremely capable, highly automated, and as a result, by bringing a lot of the decision-makers to China to see for themselves, it actually opened their eyes and changed the perception. You cannot underestimate the impact of changing the nonbelievers [and] the impact of that on the entire organization. And by changing their attitude, the entire organization will start moving toward the right direction. ❖

Subcontracting and Product Quality in China

Marshall W. Meyer, professor of management at Wharton, has made many trips to China to research the rapid growth of its economy and the successes and difficulties it has had in growing so quickly. In this interview, Meyer discusses the recent controversy surrounding China's exports of substandard toys and pharmaceuticals to the United States, and the implications for supply-chain management.

Knowledge@Wharton: As you know, there's been no shortage of press reports in recent months about the questionable quality of many of the products that are coming out of China. What is your take on this issue? How serious a problem is this?

Meyer: Any time a product poses risks to children and poses risks to people who are seeking medical treatment it's a serious problem. So the magnitude of the problem may be limited, but still I think we have to take all of these issues quite seriously.

Knowledge@Wharton: In your view do the press reports that we have been seeing on China's products parallel in any way the products that were produced, say, by Japan back in the 1950s when it was emerging from World War II and trying to get its economy going. Are there historical parallels to these issues with China?

Meyer: There are and there aren't. The parallel is this: If you look at Japan prior to the 1960s or Korea prior to the 1980s, a lot of the products they were producing were inexpensive products. People would sometimes joke about them. I don't think that the products coming out of Japan and Korea at those times posed threats to kids, but my memory could be wrong on this.

I do have a distinct recollection, however, from the early 1970s when model railroad shops were retailing some HO trains from Korea [that] were marketed as "the disaster series." They were so bad that they were a joke. But of course, things have changed very, very rapidly for Japan and for Korea.

Knowledge@Wharton: And in the case of China, would you say that the experience of these shoddy products, for lack of a better word, has been limited? Is there something inherent in manufacturing systems in that country or in the way that companies in China approach manufacturing that has led to these kinds of problems? Is there anything inherently awry in China that would cause this kind of thing?

> "Any time a product poses risks to children and poses risks to people who are seeking medical treatment, it's a serious problem."
>
> —Marshall W. Meyer, professor of management, Wharton

Meyer: I don't know if it's inherently awry in China, but I think there are some differences between Chinese and U.S. systems that U.S. firms and U.S. distributors don't fully appreciate. Let me start with an example close to home. We've all been reading about the Boeing 787, and as of this morning, Boeing promises that the Dreamliner will be delivered on time.

Still, they have encountered some difficulties in meeting schedules. And what you read suggests that their very lengthy supply chain is getting in their way. There are countless numbers of suppliers that are involved in putting together all of the components on a 787 and it's possible that Boeing underestimated the complexity of managing all of them simultaneously to a single deadline.

Now let's turn to China. It's very interesting in China. First of all, Chinese firms are very small compared to U.S. firms and most people don't appreciate that. Second, the Chinese prefer to operate through arm's-length contracts rather than building large firms. There's a term for it. It's called "cheng bao" sometimes, and it literally means "contracting."

And that means, to give you an extreme illustration of it, that you get into a taxi in Shanghai and say, "Take me up to Suzhou," which is a good long ride. It would normally be about 300 to 350 RMB on the meter. Let's say that would be about $45 to $50. You agree with the cabdriver on a fare and say, "Don't do it on the meter. I'll just give you 400 RMB, tax, tips, tolls all included."

And you hop in the cab and he goes three blocks and then waves down his friend and says to him, "Will you take these folks up to Suzhou for 300 RMB?" And the next thing you know you are transferred to the other taxicab. The first driver pockets the difference and you'll get your ride up to Suzhou. That's not a problem. It's interesting how transactional so many events are in China.

Now let's go to manufacturing — the large manufacturers. Let's look at toy manufacturers like Mattel. They normally forbid second- and third-tier subcontractors. And yet when you look, what you will see in many instances is that in violation of contract terms sometimes second-, third- and fourth-tier subcontractors are used. All this [is] aimed at getting the cost down.

So the issue is partly whether this conforms to contractual arrangements. But it's also partly whether you can administer this effectively, whether you can control it, whether you know the ingredients or the components going into your products. I think that's where a special kind of problem lies in China.

Knowledge@Wharton: The Bush administration recently signed some product safety agreements with China that place added responsibility on China to regulate exports of some pretty important products, drugs, medical devices, food for people and animal feed. What is your reaction to these agreements?

Meyer: This is part of the ongoing strategic economic dialogue. It's the third meeting that they started a year ago in December, had a May meeting in Washington, and are having their December meeting again in China. I have a couple of reactions to it. The first reaction is: good progress, moving in the right direction here.

China is clearly interested in maintaining an open door, I think, on both sides of the water. They talk about it as if it's on both sides of the water. And I think this administration is interested in the same thing, and I think all parties acknowledge that a little bit of supervision is going to be very helpful here.

What really interested me — and we are getting very, very early reports because the talks were only today [Dec. 21, 2007, and] of course it is 13 hours later over there — ... is that the talks are described as heated, and they are described as going past the deadline or the time limit set on the agenda.

They went late an hour or so today. I think this is a very, very positive sign. I learned from some of my Chinese friends almost a year ago, at the end of January, who had observed these talks, that the participants dropped all pretense and began speaking with one another very, very frankly and have been constantly e-mailing if not talking with one another on the phone since. So I see all of this as good progress.

Now here is the caveat. The issue in China is always the ability of the central government to control things on the local level. Will the central government be able to carry out the inspections promised? Will they delegate this to the provinces in the larger municipalities and, if so, with what impact? I think we need answers to these questions and we need constantly to monitor this.

Knowledge@Wharton: Now, given everything that you have said so far, let's talk a little about the specific focus of our podcast series on procurement. Again, as you well know, many, many U.S. firms and firms in Western Europe, in Asia even, rely on China for products. What steps should be taken to deal with this quality issue by companies that rely on Chinese firms to make their products?

Meyer: First, it's urgent that they take these steps. Second, these steps may be more important in the end than the strategic economic dialogue. Third, here are the steps I think they are going to have

to take. As everyone knows, in China transactions occur between people who know one another. You have dinner three or four times and do a transaction. [It's] not the other way around. As a consequence, in order to be sure that contracts are carried out as written, you have to have people over there.

You have to have people in-country. You have to have people who are actively monitoring the execution of contracts. I think Western firms have underestimated the need to have people on the ground actually watching what their suppliers are doing. I don't think the suppliers would take this as a burden. They would take it as a compliment — someone's there, they want to talk with us, they want to be our friend, and they want to eat meals with us.

This will cost money. But I think in the end, the cost to the firms — also, most important, the cost to the consumer — is going to be a heck of a lot less. So I would strongly urge firms to reconsider their policies encouraging arm's length and low-cost transactions and investing more in putting their own people on the ground over there with their suppliers and subcontractors, if there are any, so that they can be sure who is producing the goods for which they are ultimately responsible.

Knowledge@Wharton: Are there any impediments in place within China, perhaps imposed by the government or maybe just cultural impediments that would not permit procurement people outside China from going into the country?

Meyer: I think quite the opposite. I think that it would be encouraged over there because people are always complimented when someone comes to visit them. You know, so many conversations with folks in China end up, "Come visit Beijing. Come visit Shanghai. Come visit Suzhou." So I think quite the opposite. I think that would be welcome by all parties. I think that at the end of the day it's going to be far more effective than relying on the central government to take care of these issues.

Knowledge@Wharton: Let's assume for example, that a firm, someone listening to our podcast, his or her company is thinking of sourcing from China, or if they already are maybe increasing the amount of business they do there. What specific people, employees, should be going to China to do the things that you suggest? Should they be people who are well-versed in procurement? Or should they be more senior company managers in order to show the Chinese that they have a great interest in working with suppliers?

Meyer: If senior people have time, a courtesy visit or two always is very helpful. You get your picture taken, your picture is on the wall, [and] you become a presence. But I think some operational people should take a look alongside the procurement people. The procurement folks are motivated by cost, the operational people more likely by quality.

So I think it is very important that people have deep familiarity with a production process. Look at the contractors' and subcontractors' processes in order to verify that those processes are going to produce products to the standard you are expecting.

Knowledge@Wharton: Does this mean that folks from outside China, who are going there, should expect to spend, what would you say, days, weeks, months at a time at a given site? Or should they be traveling back and forth frequently? As a practical matter, how much time do you think would be involved in this?

Meyer: I don't think weeks are required. I think days are required on-site. It would depend on the industry: the more complicated the technology, the more time. But a single visit is not going to do it. You've got to go and renew those relationships every four months [to] six months. Probably once a year is not enough. So it's not extended travel, but it's perhaps more frequent travel that's in order.

Knowledge@Wharton: Do you think that there are any lessons that can be learned by procurement people who are perhaps sourcing from other countries, from countries other than China, whether it's in Latin America or India that can be applied to the Chinese experience?

I guess what I am saying is, if Company X has been sourcing from, say, India for a while and decides that they want to increase their activity in China, is there anything that's transferable from one country to another?

Meyer: It's hard to say. You know people develop a general savvy about working outside their home country and that's always quite valuable. But I think that China is almost unique in the extensiveness of subcontracting. India, which has very, very large firms, may not be similar. My guess, but I don't know, may be that Latin America is also going to have much larger companies than China and not be so involved in subcontracting.

Knowledge@Wharton: In terms of the Chinese experience with quality issues, do you think that it's going to take a long time for a lot of those issues to be resolved, in terms of China bringing

its processes up to snuff, etc., educating the right people and finding the managers to run these smaller companies that you have talked about? Is this going to be a long time coming or are we going to be reading about quality issues in China for many years to come?

Meyer: I think that the issue will always be with us, but I also think its significance will fade a bit because the market will punish firms bringing inferior goods into the U.S. or any Western country. In the U.S. we have strict liability. Everyone in the supply chain is liable. And, as a consequence, firms like Mattel again will pay a lot more attention than they used to to the quality of goods that are coming out of China. I think the longer-term issue is going to be the quality of goods available to the Chinese consumer because the laws in China are not enforced with the same rigor as they are in the U.S.

And so it's going to be a longer time, I think, before the Chinese public can be as confident of what they are buying as can the public in the U.S., Western Europe and the like. ❖

Managing Commodity Risk

Managing commodity risk has emerged as a key issue in today's economy. Consider airlines, which have seen fuel costs rise seven-fold over the last few years, says Bob Tevelson, a partner and managing director at BCG. In this interview, Tevelson says commodity risks are associated with both price volatility and supply availability. More and more companies may wish to turn to hedging strategies to manage commodity risk, he notes, but such strategies can pose risks themselves unless they are properly implemented.

Knowledge@Wharton: You've spent considerable time thinking about managing commodity risk. How big a problem is commodity risk for most companies, and who is most at risk?

Tevelson: I think that the commodity risk issue is significant and growing in importance for many companies. I think that if your P&L (profit and loss) is subject to variability, based on what's being bought in commodity markets where you don't have a lot of control, this is an important issue. You're kind of at risk.

We think that anything above 10% in terms of exposure of what you buy in commodity markets means that it's something to look at, something to invest in, and see where you sit at the moment and what improvements you might be able to pursue.

Knowledge@Wharton: Are there certain companies or certain industries that are more at risk than others?

Tevelson: Yes, I think the industries that are closer to the raw material sources are at greater and greater risk. The automotive industry — with steel and a lot of the plastics and the materials that they use — is clearly at risk. The airlines, with their number one cost item in recent months being fuel, clearly have to understand the risks they are exposed to, what the implications are for their P&L, how that impacts their strategy, [and] how they manage their loads and the like.

Knowledge@Wharton: What types of risk can be addressed, and how do firms go about addressing them?

Tevelson: I think the main commodity supply risks are associated with price volatility, and one that I think will grow in importance ... is supply availability. With respect to price volatility, it's that many buyers acquire commodities very much needed to make their product or deliver their product, and they are not able to influence or control that commodity directly because they are a smaller player in a much larger market.

> "...industries that are closer to the raw material sources are at greater and greater risk."
> —Bob Tevelson, partner and managing director, BCG

On the supply availability issue, [the question is]: What are the risks to my ability to deliver to my customer based on the ability to acquire what I need, when I need it, and the right quantity and quality? That has always been an issue, but as companies have moved closer and closer to single and tighter supplier relationships, the degrees of freedom you have — when you have a failure in your supply chain — really have shrunk considerably over time.

And then, another issue on the horizon is that, with supply chains extending, there are more points of failure in a normal system, and you are finding a growing constraint in terms of the available capacity for getting materials from Point A to Point B. Years ago, the strike at Long Beach [involving] the dock workers caused major disruptions. So, supply availability is not just being able to acquire what is needed — it's being able to acquire it in the right time frame, quality and the like.

Knowledge@Wharton: In terms of managing commodity risk, what practices are leading edge?

Tevelson: I think in terms of the supply risk, it's really understanding your supply market at a very detailed level and making sure that your sourcing strategies reflect the risk that exists today and consider what risks might arise in the future — whether they be natural disasters or changes in the supplier market whereby one of your core suppliers may be acquired by your competitor, through vertical integration, for example.

So, it's really understanding and building from the supply strategy a reasonable supply base and set of sources — meaning suppliers as well as locations — and through that process defining where the points of failure would be and then developing a plan that allows you to escape the hazards, if in fact you have one of those events happen. And then, from a price volatility perspective, it's really [about] trying to understand what exposure [is], what drives the prices of the commodities, and then coming up with a specific strategy to address it.

Knowledge@Wharton: What types of practices make you nervous?

Tevelson: What makes me most nervous is when companies go ahead and get excited about hedging while not fully realizing what they are getting involved with. Hedging sounds very interesting, and if it's done without a lot of thought it's really gambling.

What I like to see is companies pursue hedging strategies as an insurance policy — going into the market or arranging their supplier relationships in such a fashion whereby they add predictability, they add stability to their input pricing so they can manage pricing in the marketplace and not be surprised by sudden changes — versus coming in and saying, "I'm going to be able to hedge fuels and I'm going to be able to beat the market in terms of the direction of fuel on a day-to-day or month-to-month basis."

What makes me most nervous about people approaching hedging is not thinking through the implications on the front end [and] not involving the right constituents in terms of stakeholders. For example, a hedging program really requires a cross-functional approach. It requires senior management attention and careful thought around the accounting requirements to make sure that no one gets into any questions with the SEC, especially for publicly-held companies.

Knowledge@Wharton: Before we began recording our conversation, you and I were talking informally about who actually devises and implements the hedging strategies. Can you take just a minute or two to talk about that?

Tevelson: In typical organizations, there is a finance function that gets involved in currency hedges. In more sophisticated, best-practice companies, you will find that there is a commodity trading desk or operation. And that operation is typically procurement-type folks or financial types who develop thorough understandings of the supply market and put together a recommended hedging strategy based on an assessment of the supply market, potential conditions, risk factors and what's anticipated going forward. But they just put together the facts and the options. They typically meet with a cross-functional team — sometimes with marketing and sales — because there are implications around the hedging strategies for how we set prices, but also with senior management from an operations perspective and clearly from a finance perspective.

Those companies meet in those forums. They review what the commodity trading desk is finding in the marketplace and what they think their options are going forward. And it's in that forum that they make their decision, and then it is carried out typically between the commodity desk and finance, to make sure all of the *i's* are dotted and the *t's* are crossed.

Knowledge@Wharton: Getting back to our general discussion, how does a firm know which kind of risk management techniques to apply?

Tevelson: In terms of the supply disruption risk, I think it's a matter of understanding your core commodities and being able to understand what real risks exist versus what risks are perceived, and then for those, deciding what the best strategy would be. If we're concerned about a single plant or a single supplier situation causing a problem, maybe you can dual-source in terms of location from one supplier. Or maybe you need to introduce a more proximate supplier, even if it has to be done

at a premium, so that if your more distant supply chain partner is not able to deliver, you have a backup plan.

Knowledge@Wharton: What should a company do to increase the odds that it will be successful?

Tevelson: I think increasing the odds of success is having clear objectives. And that's more so on the pricing/hedging end, which is understanding what it is we are trying to accomplish, what are the objectives of the program, what degree of risk we're willing to take on, and then basically investing appropriately in resources to ensure that we have a solid foundation of fact [and] we have a good perspective on what may happen in the future. Obviously, the more speculative it is, the more informed it is [and] the better the strategy and hopefully the better the result.

Knowledge@Wharton: What changes do you foresee in commodity risk management in the months and years to come?

Tevelson: I think companies are going to get more sophisticated as their P&Ls are exposed every day to more and more of this volatile raw material input cost. So I think companies are going to increase their sophistication. I think you'll see more companies engaging in hedging.

I think one thing that we haven't talked about [that] I'd like to touch on is the types of hedges that you can get involved with. The most simple of course is a financial instrument in a liquid market, where you could just basically buy the insurance in the marketplace. What's more interesting to me and somewhat trickier is when the liquid market doesn't exist. And then you look at: How do I hedge my price through, for example, longer supplier relationships, meaning contract duration?

Or, two, looking at potentially vertical integration: Am I best suited to buy the raw materials to assure supply and manage the price? You are seeing a lot of consolidation in the steel market at the moment and also a lot of concentration in the raw materials, in terms of ore and coke going into the industry. And I think that that's a very, very interesting dynamic.

And then finally, another thing that companies are doing is trying to identify things that are correlated in terms of performance, a proxy hedge if you will, hedging one item because it is correlated to another. And those get to be tricky because there are a lot of accounting issues. But I think the non-financial-instrument hedging strategies are the most interesting because they're pretty strategic and require creativity.

Knowledge@Wharton: Do you think that the hedging strategies you've just discussed briefly will continue to be important in the years to come?

Tevelson: I think they'll increase in importance. I think what we are seeing in the commodity markets right now is exposing companies to what the marketplace has been doing in maybe a smaller subset. And I think the impact, in terms of the growth of prices and the volatility up and down, is getting people to think more and more about what needs to be done.

So, I would suggest that commodity hedging strategies are growing in importance and you'll see more and more people pursuing them. I think what will be interesting is to see what the evolution is on the more creative side, how industries may restructure based on commodity risk management, and how people will come up with innovative ways to work with their suppliers to offset that to a degree.

Knowledge@Wharton: Finally, do you have any views on where commodity risks are heading? What I mean by that is, we know that the price of oil has been soaring in recent months, for instance, and it is a key commodity to everyone, every business, every industry in the world. Are there other sectors where you see risks increasing in terms of supplier price that organizations should be aware of?

Tevelson: I think oil is a great example [as well as] precious metals, with gold where it is at the moment — some people are predicting it to be $1,000 an ounce. I think it's at $823-plus this morning. So I think it's a broad range of commodities which will be exposed to this.

I think part of it is the dynamics of the world economy — India and China pulling a lot more of the natural resources in terms of demand. Their economies are growing at a rapid rate and their consumption of basic commodities is growing. And I think it's that kind of draw in growth that will continue to increase pressure and will continue to get companies thinking differently about commodities and commodity risk management.

Knowledge@Wharton: From what you are saying, it sounds like no company is immune from these risks — that pretty much, it's going to affect everyone who's doing business.

Tevelson: I think it will affect companies, some more so than others..... I was talking to a senior executive in procurement just yesterday from one of the major [airline industry] players in the U.S., and fuel this year has eclipsed labor as the number one cost element in their business. It has increased seven-fold over the last few years. That's just a phenomenal growth rate. And I just think that it's absolutely critical that companies get on top of it, and I think it will just increase in importance. ❖

Performance-based Logistics

These days, when the U.S. Department of Defense buys a fighter jet from Lockheed Martin, it doesn't simply pay Lockheed for the physical product. Instead, the government has a "performance-based contract" with the defense supplier, according to Serguei Netessine, professor of operations and information management at Wharton. This contract says, in effect, that the government's reimbursement to Lockheed hinges on the jets' performance –- that is, how often the planes are able to fly. In this interview, Netessine describes how performance-based contracts are becoming more common in a variety of industries.

Knowledge@Wharton: We are going to talk about something called "performance-based logistics," and there is another interesting phrase called "power by the hour." In some recent research that you have done, you have also talked about the aerospace industry and even Rolls-Royce, which factor into our discussion today. You worked on a research project with Morris Cohen, who is also a professor at Wharton, on this whole idea of something called performance-based logistics. Can you take a minute or two to describe what that means?

Netessine: Sure. I guess the project itself started with our joint work with Lockheed Martin. Lockheed Martin is one of the biggest suppliers to the [U.S.] Department of Defense, as they manufacture a variety of products. One of the best-known products is the Joint Strike Fighter, which is a fighter jet. ... Lockheed Martin is going to be manufacturing and servicing [it] over the next 50 or 70 years and that is going to be a standard fighter jet used by all NATO nations.

So this product is extremely expensive [and] extremely costly to manufacture, but it is even costly to service because the life span of this product is very long. An airplane is going to be in service maybe 30, 40, 50 years, and over this lifetime Lockheed Martin will have to make sure the airplane is operational.

Now what the Department of Defense wants from Lockheed Martin is a performance-based contract. That is, Lockheed Martin doesn't get paid if an airplane doesn't fly. And this is a very radical transformation, a very radical departure from the way the Department of Defense used to operate let's say 40, 50 and even 10 years ago. Previously, the Department of Defense would ask their suppliers to open their books and basically report to the Department of Defense how much money they spent on maintenance of military equipment. And then the Department of Defense would reimburse those suppliers and maybe give them a little something to make a small profit margin. That is how it used to work.

> "…Lockheed Martin doesn't get paid if an airplane doesn't fly. And this is a very radical transformation…."
>
> —Serguei Netessine, professor of operations and information management, Wharton

And for suppliers it was very easy and understandable. They didn't really need to keep track of their costs. They could just charge whatever was necessary and then open their books and be sure that they would be reimbursed. Not anymore. Now the Department of Defense says, "I don't care how you make this plane fly, whether you open more warehouses for spare parts or maybe you train your employees better, or maybe you design a better

product. All I care about is that the plane flies."

And now suppliers have to basically start thinking hard about how much it is going to cost them to make sure that this airplane flies most of the time. Typically the Department of Defense requires a very high availability, something like 95% of the time the plane has to fly.

So that in a nutshell is the basic idea behind performance-based logistics. You are compensated not on promise of performance and not on your cost or anything like that. You are compensated based on the actual performance of your product.

Knowledge@Wharton: When you say Lockheed Martin will be compensated for the amount of time that their planes fly, do you mean then in a sense that when the planes are mechanically fine and operational and able to fly or do you mean actually hours spent in the air doing missions?

Netessine: This is a great question and this is the kind of kink that is still being worked on. So typically what happens is the Department of Defense gives a certain forecast of how much they need to fly this plane, and there is some kind of a floor and some kind of a ceiling because everybody understands that if there is a new war, for example, then demand is going to go up and if there is a cut in the budget then demand is going to go down.

But there are certain limits within which the Department of Defense promises Lockheed Martin, for example, that the plane will be used between 1,000 and 2,000 hours in a given month. And then whenever the Department of Defense needs this plane, it has to fly 95% of the time, it has to be available 95% of the time. So it is kind of a combination. On one hand, there should be demand for flying hours from the Department of Defense. On the other hand, Lockheed Martin is protected a little bit from wild fluctuations in demand for the airplane.

Knowledge@Wharton: The whole notion of performance-based contracting applies to other industries, not just say the Defense Department and a defense contractor. Can you discuss a couple of the other businesses, other industries that are affected by performance-based contracting or are beginning to adopt it?

Netessine: Absolutely. Actually the precursor to performance-based contracting was, I believe, an arrangement in the commercial airline industry which was called "power by the hour." For example, if you just look at any kind of commercial airplane flown by any commercial airline, typically the engines are covered by a separate contract between the airline and engine manufacturer.

There are only a few engine manufacturers. There is General Electric, there is Pratt & Whitney, and there is Rolls-Royce, for example. And the contract even going back 10 or 20 years would basically specify that the airline pays for the flying hours of the engine. And then the engine manufacturer or any kind of a third party that is providing service for those engines has to make sure that those engines are operational whenever they are needed.

So these kinds of arrangements existed for a long time and they were basically the driving force behind this decision of the Department of Defense to switch to performance-based contracting, because over the years those relationships worked very well in commercial aerospace.

Knowledge@Wharton: And it was Rolls-Royce that coined that phrase "power by the hour?"

Netessine: I believe so. Of course, this was some years back and it is hard to trace it now, but I believe that Rolls-Royce was the first one. I also believe they probably have the best experience with those kinds of contracts. So Rolls-Royce, for example, provides engines to commercial airlines, but they also provide engines to military aircraft and military helicopters. So for them it was probably the easiest transformation to bring it from the commercial side to the military side.

Knowledge@Wharton: The industries that you've discussed so far are certainly key industries for the United States and really for any other industrial country. But I think that there may be some applications of this idea in the retail sector as well, and for products that may impact consumer-goods companies and average people like you and I and our listeners in terms of the products they buy. Is that true?

Netessine: Possibly. So what we have seen so far, for example, is there are a few applications of performance-based contracting. In the chemical industry, where, let's put it simply, a chemical company needs from its supplier some kind of service, let's say cleaning of equipment with some kind of chemicals. Previously we would see that the company would just buy those chemicals [and] pay for those chemicals to the supplier to clean the equipment. But in reality, what the company cares about is that the equipment gets cleaned. So the company doesn't really want to buy those chemicals and care about those chemicals.

So we see a transformation toward what is called "servicization," and servicization is kind of a bigger umbrella word for transforming the business from just buying parts, buying products, [and] procuring products to procuring services. In the chemical industry example, this would be procuring cleaning services, and you would pay for the quality of cleaning rather than for the chemicals that are used.

Another example is commercial and residential air conditioning systems. In those again, there are very large systems, and very often a building owner would buy an air conditioning system for the building and pay for the air conditioning system, and then pay for services of this air conditioning system. But really, all the owner cares about is that the system works and it delivers cold air to the building.

So a lot of companies, a lot of manufacturers of those air conditioning systems, for example, have been moving toward paying for performance. A building owner would pay the provider of an air conditioning system for the time the system is operational, paying for system uptime, for system operation 99% of the time or better.

So that's another example of moving toward servicization and performance-based contracting, or "power by the hour."

Knowledge@Wharton: A recent study that you and Professor Cohen worked on is titled "Performance Contracting in After-Sales Service Supply Chains," which is a lengthy title, but it is the "after-sales service" that is interesting. That is a big component of the revenue and profitability components of companies, is it not?

Netessine: I think it is much bigger than many companies realize. There are a few studies that have been done and they demonstrated that very often when you have complex sophisticated equipment like an airplane, let's say, companies pay much more for servicing this equipment than for buying this equipment. Moreover, this turns out to be a much more profitable line of business. On average, providing service, providing maintenance on an airplane, for example, is at least twice as profitable as selling airplanes themselves.

So I think the best class of companies has been slowly moving toward providing more and more services rather than selling equipment. A good example might be Best Buy with their Geek Squad. Geek Squad is those guys who come to your house and service your computer or TV or whatever else you might have. And this turned out to be a business that is still in high demand and a highly profitable business.

So I absolutely agree, this is becoming a huge part of our economy, and companies are realizing more and more that you can make more money by servicing rather than by selling.

Knowledge@Wharton: And is performance-based contracting or performance-based logistics a concept that executives and managers and procurement departments in companies know about now and have accepted and are thinking about and are implementing, or is it for some companies perhaps a relatively new idea that hasn't been percolating to the executive suite yet?

Netessine: I believe it is a relatively new idea. It depends on the industry. So in commercial aerospace, for example commercial aircraft, this idea has existed for about 20 [to] 30 years now. And when you look [at] the military -- how the Department of Defense did business historically -- that's a very new idea.

What executives need to understand, I believe, is that whenever you have a contract with a supplier for delivery of any kind of service, you have to think carefully about what incentives are created by such contracts. As I mentioned in the beginning, historically the Department of Defense used to, for example, reimburse all suppliers based on their costs.

Well what kind of incentives does this arrangement create? Very clearly, the supplier has absolutely no incentive to reduce costs because everything that the supplier incurs in terms of cost is going to be reimbursed. So why should I care about reducing my costs? On the contrary, I am going to inflate my costs to the extent possible. So that created very perverse incentives and great dissatisfaction with the Department of Defense with respect to efficiency of suppliers.

On the other hand, when you go to performance-based logistics and you start reimbursing suppliers just on performance of the airplane or whatever that might be -- some weapons systems maybe -- then both the supplier and the buyer of the service care about the same thing. The buyer wants to increase availability of the airplane and the supplier wants to increase availability of the airplane because the supplier is paid based on availability.

If you apply this kind of relatively simple thinking to any kind of relationship that the company has with

suppliers, I think then we would be moving in the right direction, we would be aligning incentives of buyers and suppliers.

Knowledge@Wharton: Clearly you've spent a lot of time working on this issue and a lot of time thinking about it. Are there any interesting unanswered questions that you would like to address in your future research projects? What is interesting going forward for you?

Netessine: I think the biggest issue that many of those industries face right now is how exactly to measure the performance of the supplier. This gets very tricky, especially when we are talking about this kind of complicated and expensive equipment. For example, airplane engines don't fail very often. They may fail once a year, on average. That does not give you a lot of information that allows you to assess supplier performance. So the engine failed once and the supplier, let's say, took a week to restore this engine. And maybe a week is too long. Maybe you wanted to get it done in one day. But it is very small number.

So if your engine failed once, is that really reflective of average supplier performance or is it a random glitch that is not going to happen in the future? So this becomes very difficult. It becomes very hard to figure out whether the supplier really deployed the necessary capabilities to support this engine if the equipment fails very, very rarely. This is something that companies in aerospace and defense have been struggling with recently.

Knowledge@Wharton: One other question that you and Professor Cohen have maybe thought about. I don't know whether you have started to formally look at this as academic researchers. Could there come a time when consumers may not want to own automobiles for instance? I mean, why pay full price for a car if it is not being used a lot or if it is not working in certain situations? Is this whole idea of performance-based contracting transferable to something like a car or a truck or another consumer product?

Netessine: Yes, more or less. With cars I think, what we see currently is if you want your car serviced at sort of no additional cost, you sign [up] for all kinds of extended warranty plans and service plans. And maybe this might be more or less an acceptable way to do it because the car is not such a complicated product.

I would maybe equate performance-based logistics in the case of cars with companies like CarShare, where you can pay for a car by the hour. If you only need a car for an hour a week or an hour a month, it doesn't make a lot of sense for you to buy it and own it for many months or for many years. And so there are those smaller companies popping up where you can just get a car for an hour or two and pay for exactly that hour or two and forget about servicing the car and forget about paying all the other costs such as insurance.

So that might be what comes closest to performance-based logistics. But again, I think this notion of performance-based logistics applies best when products are relatively complicated and it is very hard to predict when the equipment is going to fail and how much it is going to cost to repair it. A car is still a relatively simple product. So I am not sure if it has a big future with performance-based logistics. ❖

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